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Ambient Air Monitoring Report

***National Industries, Inc. Reclamation Area Site
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

January 2012

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BARR

Ambient Air Monitoring Report

***National Industries, Inc. Reclamation Area Site
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

January 2012



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Jefferson City, MO 65109
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April 2, 2012

Mr. Mark Nations
The Doe Run Company
P.O. Box 1633
Desloge, Missouri 63601

Re: Ambient Air Monitoring Report – National Site

Dear Mr. Nations:

Please find attached the January 2012 “*Ambient Air Monitoring Report*” for The Doe Run Company at the National Industries, Inc. Reclamation Area Sites, located near Park Hills, Missouri.

This report will include the following:

- **Glossary of Terms** – Listing of the abbreviations used for each parameter and unit.
- **Ambient Air Quality Standards** – Lists the maximum allowable concentrations for the measured parameters.
- **TSP, Lead & PM₁₀ Particulate Summaries** – Includes the averages of each monitored parameter, which relates to the federal standards.
- **Particulate and Lead Analysis Spreadsheets**.
- **Lab Results (lead & cadmium)** – Lab reports from Inovatia Laboratories, LLC.
- **Meteorological Data Printouts** – This supplies printouts of each parameter.

Barr Engineering Company offers this report as an independent laboratory. This includes the weighing of filters, obtaining lead and cadmium analysis, compiling the data, and preparing the report. No interpretation of the data or analysis of the results is implied or intended. Should you have any questions regarding this report, please call.

Respectfully,



Richard J. Campbell, PE
Chemical Engineer
Senior Environmental Consultant

c: Kathy Rangen
Jason Gunter
Ty Morris
Kevin Lombardozzi

GLOSSARY OF TERMS

$\mu\text{g}/\text{m}^3$	Micrograms per Cubic Meter
mph	Miles per Hour
Wind Direction	Degrees from True North
TSP	Total Suspended Particulate
PM ₁₀	Particulate Matter - 10 Microns or Less
mmHg	Millimeters of Mercury

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

PM ₁₀ – Particulate Matter	24-Hour*	Annual Maximum	150 $\mu\text{g}/\text{m}^3$
Lead	Calendar Quarter	Arithmetic Mean	1.5 $\mu\text{g}/\text{m}^3$
Lead	Rolling 3-Month Average	Arithmetic Mean	0.15 $\mu\text{g}/\text{m}^3$

TSP (Total Suspended Particulate) – There are no Federal Standards that apply solely for TSP.

*This standard must be exceeded more than once a year to constitute a violation.



TSP and Lead Concentration Summary

National
Park Hills, Missouri

2012

Date	TSP Big River #4 ($\mu\text{g}/\text{m}^3$)	TSP Ozark #1 ($\mu\text{g}/\text{m}^3$)	TSP Soccer #2 ($\mu\text{g}/\text{m}^3$)	TSP Water Plant #3 ($\mu\text{g}/\text{m}^3$)	LEAD Big River #4 ($\mu\text{g}/\text{m}^3$)	LEAD Ozark #1 ($\mu\text{g}/\text{m}^3$)	LEAD Soccer #2 ($\mu\text{g}/\text{m}^3$)	LEAD Water Plant #3 ($\mu\text{g}/\text{m}^3$)
1/3/12	14	35	23	13	0.014	0.074	0.046	0.017
1/4/12	60	40	27	37	0.088	0.026	0.023	0.046
1/5/12	19	41	22	15	0.033	0.073	0.039	0.030
1/6/12	22	33	33	22	0.019	0.025	0.026	0.021
1/9/12	47	42	35	26	0.054	0.033	0.041	0.023
1/10/12	33	26	34	25	0.026	0.009	0.024	0.025
1/11/12	17	22	24	18	0.007	0.013	0.019	0.012
1/12/12	25	31	24	22	0.025	0.008	0.008	0.029
1/13/12	17	21	21	15	0.014	0.013	0.025	0.011
1/16/12	24	29	30	26	0.009	0.018	0.010	0.006
1/17/12	11	23	15	10	0.000	0.011	0.007	0.000
1/18/12	16	17	17	12	0.012	0.015	0.019	0.008
1/19/12	29	19	22	21	0.017	0.006	0.013	0.010
1/20/12	30	23	26	25	0.015	0.007	0.010	0.008
1/23/12	13	23	19	13	0.006	0.015	0.016	0.014
1/24/12	28	20	25	18	0.014	0.009	0.019	0.011
1/25/12	6	3	3	3	0.000	0.000	0.000	0.006
1/26/12	7	13	11	7	0.000	0.000	0.000	0.000
1/27/12	11	11	12	7	0.007	0.007	0.016	0.006
1/30/12	16	25	26	20	0.000	0.018	0.027	0.014
1/31/12	15	28	18	23	0.009	0.064	0.019	0.035
Monthly Average	22	25	22	18	0.018	0.021	0.019	0.016
Dec 2011					0.008	0.010	0.018	0.010
Nov 2011					0.010	0.016	0.033	0.011
Rolling 3-month Average					0.01	0.02	0.02	0.01
					3-month Average Lead NAAQS $\mu\text{g}/\text{m}^3$			
								0.15

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.



Particulate Summary

National
Park Hills, Missouri

2012

Date	PM ₁₀ Big River #4 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ Ozark #1 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ Soccer #2 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ Water Plant #3 ($\mu\text{g}/\text{m}^3$)	PM ₁₀ NAAQS ($\mu\text{g}/\text{m}^3$)
4-Jan	20	16	11	12	150
7-Jan	13	14	14	12	150
10-Jan	27	21	23	20	150
13-Jan	13	10	9	8	150
16-Jan	13	12	11	11	150
19-Jan	15	11	11	12	150
22-Jan	10	8	9	8	150
25-Jan	15	9	9	7	150
28-Jan	2	5	5	2	150
31-Jan	11	13	9	10	150
Monthly Average	14	12	11	10	

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

Particulate and Lead Analysis



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4557

Big River Site #4- Primary

Sample Date 2012	Filter ID	TSP Net Wt. g	Lead Total Wt. μg	T_{av} C	P_{av} mmHg	P_f mmHg	Ratio P_f/P_{av}	Q_a m^3/min	Q_{std} m^3/min	Elapsed Time hr	Sample Volume V_{std} m^3	Mass Concentrations TSP $\mu\text{g}/\text{m}^3$	Lead $\mu\text{g}/\text{m}^3$
1/3/2012	8498321	0.0251	27	-3	754.3	32.8	0.957	1.200	1.311	23.62	1858	14	0.014
1/4/2012	8498312	0.1085	159	5	748.0	33.7	0.955	1.213	1.279	23.72	1820	60	0.088
1/5/2012	8498302	0.0336	59	9	746.2	34.2	0.954	1.220	1.264	23.74	1801	19	0.033
1/6/2012	8461893	0.0393	33	13	741.1	34.7	0.953	1.226	1.245	23.77	1776	22	0.019
1/9/2012	8461884	0.0865	99	2	749.4	33.3	0.956	1.208	1.289	23.67	1831	47	0.054
1/10/2012	8461874	0.0607	48	3	744.2	33.4	0.955	1.209	1.278	23.70	1817	33	0.026
1/11/2012	8461865	0.0297	12	5	735.1	33.7	0.954	1.212	1.255	23.75	1788	17	0.007
1/12/2012	8461854	0.0457	45	-5	740.0	32.5	0.956	1.195	1.292	23.52	1823	25	0.025
1/13/2012	8461845	0.0312	26	-6	746.5	32.4	0.957	1.194	1.306	23.69	1856	17	0.014
1/16/2012	8461835	0.0420	16	14	741.3	34.8	0.953	1.227	1.244	23.71	1769	24	0.009
1/17/2012	8461826	0.0197	< 10	5	745.0	33.7	0.955	1.212	1.273	23.70	1811	11	0.000
1/18/2012	8461818	0.0294	23	-4	750.0	32.6	0.957	1.197	1.307	23.64	1854	16	0.012
1/19/2012	8461807	0.0533	31	1	744.7	33.2	0.955	1.205	1.285	23.54	1815	29	0.017
1/20/2012	8462399	0.0553	28	-3	744.0	32.7	0.956	1.198	1.294	23.78	1847	30	0.015
1/23/2012	8462388	0.0227	11	7	740.3	33.9	0.954	1.215	1.261	23.76	1797	13	0.006
1/24/2012	8462380	0.0511	26	1	750.7	33.2	0.956	1.207	1.294	23.65	1836	28	0.014
1/25/2012	8462371	0.0116	< 10	1	748.3	33.2	0.956	1.206	1.290	23.66	1831	6	0.000
1/26/2012	8462358	0.0122	< 10	2	740.4	33.4	0.955	1.207	1.273	23.62	1804	7	0.000
1/27/2012	8462352	0.0198	13	3	743.9	33.5	0.955	1.209	1.277	23.77	1821	11	0.007
1/30/2012	8462342	0.0295	< 10	9	747.2	34.2	0.954	1.219	1.266	23.70	1801	16	0.000
1/31/2012	8462333	0.0262	16	14	744.8	34.8	0.953	1.228	1.249	23.69	1775	15	0.009

Data Captured	TSP	Lead
Valid Samples:	21	21
Scheduled Samples:	21	21
Percent Data Captured:	100%	100%

Monthly Average:	22	0.018
Standard Deviation:	13	0.020
Maximum:	60	0.088
Minimum:	6	0.000

NOTES

1/2/2012 - Holiday - No sample scheduled

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

$P_f = (((\text{Temp in } ^\circ\text{Kelvin} * \text{Temp Slope}) + \text{Temp Int.}) * 1.868$

$P_f = ((\text{Temp in } ^\circ\text{Kelvin} * 0.0664) + (-0.4213)) * 1.868$

P_f/P_{av} = pressure ratio of P_f and P_{av} = $1 - P_f/P_{av}$

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in $\mu\text{g}/\text{std m}^3$

Lead = mass concentration in $\mu\text{g}/\text{std m}^3$



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P2939

National Site #1 Ozark Insulation

Sample Date 2012	Filter ID	TSP Net Wt. g	Lead Total Wt. μg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP μg/m ³	Lead μg/m ³
1/3/2012	8498323	0.0652	138	-3	754.3	32.8	0.957	1.196	1.307	23.84	1869	35	0.074
1/4/2012	8498313	0.0737	47	5	748.0	33.7	0.955	1.209	1.275	23.83	1823	40	0.026
1/5/2012	8498304	0.0710	127	9	746.2	34.2	0.954	1.216	1.260	23.14	1750	41	0.073
1/6/2012	8461894	0.0588	45	13	741.1	34.7	0.953	1.222	1.241	23.80	1773	33	0.025
1/9/2012	8461885	0.0748	59	2	749.4	33.3	0.956	1.204	1.285	23.37	1802	42	0.033
1/10/2012	8461875	0.0464	16	3	744.2	33.4	0.955	1.205	1.274	23.40	1788	26	0.009
1/11/2012	8461866	0.0395	24	5	735.1	33.7	0.954	1.209	1.251	23.75	1782	22	0.013
1/12/2012	8461849	0.0562	14	-5	740.0	32.5	0.956	1.191	1.288	23.29	1800	31	0.008
1/13/2012	8461840	0.0386	25	-6	746.5	32.4	0.957	1.190	1.302	23.99	1874	21	0.013
1/16/2012	8461830	0.0511	31	14	741.3	34.8	0.953	1.223	1.239	23.99	1784	29	0.018
1/17/2012	8461821	0.0425	20	5	745.0	33.7	0.955	1.209	1.269	23.96	1825	23	0.011
1/18/2012	8461819	0.0325	28	-4	750.0	32.6	0.957	1.193	1.303	23.90	1869	17	0.015
1/19/2012	8461802	0.0348	11	1	744.7	33.2	0.955	1.201	1.281	23.45	1802	19	0.006
1/20/2012	8462400	0.0421	13	-3	744.0	32.7	0.956	1.194	1.290	23.99	1857	23	0.007
1/23/2012	8462383	0.0420	28	7	740.3	33.9	0.954	1.211	1.257	23.93	1805	23	0.015
1/24/2012	8462381	0.0367	16	1	750.7	33.2	0.956	1.203	1.290	23.93	1851	20	0.009
1/25/2012	8462372	0.0061	< 10	1	748.3	33.2	0.956	1.202	1.285	23.70	1828	3	0.000
1/26/2012	8462356	0.0229	< 10	2	740.4	33.4	0.955	1.203	1.269	23.64	1799	13	0.000
1/27/2012	8462353	0.0198	13	3	743.9	33.5	0.955	1.205	1.273	23.90	1825	11	0.007
1/30/2012	8462337	0.0451	33	9	747.2	34.2	0.954	1.215	1.262	23.95	1814	25	0.018
1/31/2012	8462335	0.0508	114	14	744.8	34.8	0.953	1.224	1.244	23.90	1785	28	0.064

Data Captured	TSP	Lead
Valid Samples:	21	21
Scheduled Samples:	21	21
Percent Data Captured:	100%	100%

Monthly Average:	25	0.021
Standard Deviation:	10	0.022
Maximum:	42	0.074
Minimum:	3	0.000

NOTES

1/2/2012 - Holiday - No sample scheduled

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in μg/std m³

Lead = mass concentration in μg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4474

National Site #2 - Soccer Field

Sample Date 2012	Filter ID	TSP Net Wt. g	Lead Total Wt. μg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP μg/m ³	Lead μg/m ³
1/3/2012	8498324	0.0422	84	-3	754.3	32.8	0.957	1.183	1.292	23.60	1830	23	0.046
1/4/2012	8498314	0.0475	41	5	748.0	33.7	0.955	1.195	1.260	23.71	1792	27	0.023
1/5/2012	8498305	0.0389	67	9	746.2	34.2	0.954	1.202	1.246	23.14	1729	22	0.039
1/6/2012	8461895	0.0573	45	13	741.1	34.7	0.953	1.207	1.227	23.41	1723	33	0.026
1/9/2012	8461886	0.0636	74	2	749.4	33.3	0.956	1.190	1.271	23.59	1798	35	0.041
1/10/2012	8461876	0.0608	43	3	744.2	33.4	0.955	1.191	1.259	23.67	1788	34	0.024
1/11/2012	8461867	0.0419	34	5	735.1	33.7	0.954	1.195	1.236	23.75	1762	24	0.019
1/12/2012	8461850	0.0431	14	-5	740.0	32.5	0.956	1.177	1.273	23.24	1775	24	0.008
1/13/2012	8461841	0.0385	46	-6	746.5	32.4	0.957	1.176	1.287	23.58	1821	21	0.025
1/16/2012	8461831	0.0529	18	14	741.3	34.8	0.953	1.209	1.225	23.69	1741	30	0.010
1/17/2012	8461822	0.0258	11	5	745.0	33.7	0.955	1.195	1.255	23.31	1755	15	0.007
1/18/2012	8461820	0.0310	35	-4	750.0	32.6	0.957	1.180	1.288	23.68	1830	17	0.019
1/19/2012	8461803	0.0393	23	1	744.7	33.2	0.955	1.188	1.266	23.42	1779	22	0.013
1/20/2012	8461801	0.0466	18	-3	744.0	32.7	0.956	1.181	1.275	23.56	1803	26	0.010
1/23/2012	8462384	0.0328	28	7	740.3	33.9	0.954	1.197	1.242	23.64	1762	19	0.016
1/24/2012	8462382	0.0455	34	1	750.7	33.2	0.956	1.189	1.275	23.66	1810	25	0.019
1/25/2012	8462373	0.0061	< 10	1	748.3	33.2	0.956	1.189	1.271	23.52	1794	3	0.000
1/26/2012	8462355	0.0188	< 10	2	740.4	33.4	0.955	1.190	1.254	23.52	1770	11	0.000
1/27/2012	8462354	0.0206	28	3	743.9	33.5	0.955	1.191	1.258	23.55	1777	12	0.016
1/30/2012	8462338	0.0468	48	9	747.2	34.2	0.954	1.202	1.248	23.71	1775	26	0.027
1/31/2012	8462336	0.0322	34	14	744.8	34.8	0.953	1.210	1.230	23.64	1744	18	0.019

Data Captured	TSP	Lead
Valid Samples:	21	21
Scheduled Samples:	21	21
Percent Data Captured:	100%	100%

Monthly Average:	22	0.019
Standard Deviation:	8	0.012
Maximum:	35	0.046
Minimum:	3	0.000

NOTES

1/2/2012 - Holiday - No sample scheduled

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_f = ((Temp in °Kelvin * Temp Slope)+Temp Int.)*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in μg/std m³

Lead = mass concentration in μg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4475

National Site Water Plant #3

Sample Date	Filter ID	TSP Net Wt. g	Lead Total Wt. μg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations	
												TSP μg/m ³	Lead μg/m ³
1/3/2012	8498319	0.0247	32	-3	754.3	32.8	0.957	1.187	1.297	23.74	1847	13	0.017
1/4/2012	8498310	0.0667	82	5	748.0	33.7	0.955	1.200	1.265	23.74	1801	37	0.046
1/5/2012	8461900	0.0275	53	9	746.2	34.2	0.954	1.206	1.250	23.82	1787	15	0.030
1/6/2012	8461891	0.0378	37	13	741.1	34.7	0.953	1.212	1.231	23.74	1754	22	0.021
1/9/2012	8461882	0.0469	41	2	749.4	33.3	0.956	1.194	1.275	23.76	1817	26	0.023
1/10/2012	8461872	0.0458	45	3	744.2	33.4	0.955	1.195	1.264	23.77	1802	25	0.025
1/11/2012	8461863	0.0316	21	5	735.1	33.7	0.954	1.199	1.241	23.79	1771	18	0.012
1/12/2012	8461852	0.0403	53	-5	740.0	32.5	0.956	1.182	1.278	23.68	1816	22	0.029
1/13/2012	8461843	0.0273	21	-6	746.5	32.4	0.957	1.181	1.292	23.76	1842	15	0.011
1/16/2012	8461833	0.0450	10	14	741.3	34.8	0.953	1.213	1.229	23.67	1746	26	0.006
1/17/2012	8461824	0.0187	< 10	5	745.0	33.7	0.955	1.199	1.259	23.74	1794	10	0.000
1/18/2012	8461816	0.0224	14	-4	750.0	32.6	0.957	1.184	1.293	23.75	1843	12	0.008
1/19/2012	8461805	0.0375	18	1	744.7	33.2	0.955	1.192	1.270	23.55	1795	21	0.010
1/20/2012	8462397	0.0462	14	-3	744.0	32.7	0.956	1.185	1.280	23.65	1816	25	0.008
1/23/2012	8462386	0.0232	25	7	740.3	33.9	0.954	1.201	1.247	23.72	1775	13	0.014
1/24/2012	8462378	0.0320	20	1	750.7	33.2	0.956	1.193	1.279	23.70	1819	18	0.011
1/25/2012	8462369	0.0063	11	1	748.3	33.2	0.956	1.193	1.275	23.71	1814	3	0.006
1/26/2012	8462360	0.0134	< 10	2	740.4	33.4	0.955	1.194	1.259	23.76	1794	7	0.000
1/27/2012	8462350	0.0122	11	3	743.9	33.5	0.955	1.196	1.262	23.76	1800	7	0.006
1/30/2012	8462340	0.0356	25	9	747.2	34.2	0.954	1.206	1.252	23.76	1785	20	0.014
1/31/2012	8462331	0.0412	62	14	744.8	34.8	0.953	1.214	1.234	23.70	1755	23	0.035

Data Captured	TSP	Lead
Valid Samples:	21	21
Scheduled Samples:	21	21
Percent Data Captured:	100%	100%

Monthly Average:	18	0.016
Standard Deviation:	8	0.012
Maximum:	37	0.046
Minimum:	3	0.000

NOTES

1/2/2012 - Holiday - No sample scheduled

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_f = ((Temp in °Kelvin * Temp Slope)+Temp Int.)*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in μg/std m³

Lead = mass concentration in μg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P6609

Big River Site #4 - QA

Sample Date 2012	Filter ID	TSP		Lead		P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Mass Concentrations	
		Filter Net Wt. g	Total Wt. μg	T _{av} C	P _{av} mmHg							Sample TSP μg/m ³	Lead μg/m ³
1/3/2012	8498322	0.0224	23	-3	754.3	32.8	0.957	1.192	1.302	23.38	1826	12	0.012
1/5/2012	8498303	0.0320	62	9	746.2	34.2	0.954	1.211	1.256	23.39	1762	18	0.035
1/10/2012	8461877	0.0615	48	3	744.2	33.4	0.955	1.200	1.269	23.91	1820	34	0.026
1/12/2012	8461855	0.0519	57	-5	740.0	32.5	0.956	1.186	1.283	23.59	1816	29	0.032
1/17/2012	8461836	0.0210	11	5	745.0	33.7	0.955	1.204	1.264	23.99	1819	12	0.006
1/19/2012	8461808	0.0501	31	1	744.7	33.2	0.955	1.197	1.276	23.45	1795	28	0.017
1/24/2012	8462389	0.0502	25	1	750.7	33.2	0.956	1.198	1.285	23.94	1845	27	0.014
1/26/2012	8462357	0.0112	< 10	2	740.4	33.4	0.955	1.199	1.264	23.81	1805	6	0.000
1/31/2012	8462334	0.0284	18	14	744.8	34.8	0.953	1.219	1.239	23.89	1777	16	0.010

Valid Samples: 9 9

Scheduled Samples: 9 9

Percent Data Captured: 100% 100%

Monthly Average: 20 0.017

Standard Deviation: 9 0.012

Maximum: 34 0.035

Minimum: 6 0.000

NOTES

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

Q_a = look up table volumetric flow rate

P_{av} = average station pressure in millimeters of mercury

Q_{std} = total sample volumetric flow rate corrected to standard conditions

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.))*1.868

V_{std} = total sample volume corrected to standard conditions

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

TSP = mass concentration in μg/std m³

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - Pf/P_{av}

Lead = mass concentration in μg/std m³



PM₁₀ Analysis

The Doe Run Company

SAMPLER ID P2952										Big River Site #4- Primary									
Sample Date	Filter ID	PM10 Filter		T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _o /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³							
		Net Wt.	g																
1/4/2012	267823	0.0341	5	748.0	33.7	0.955	1.120	1.181	23.73	1682	20								
1/7/2012	267813	0.0224	5	747.0	33.7	0.955	1.121	1.178	23.69	1675	13								
1/10/2012	267804	0.0449	3	744.2	33.4	0.955	1.117	1.180	23.64	1674	27								
1/13/2012	268395	0.0227	-6	746.5	32.4	0.957	1.103	1.207	23.69	1716	13								
1/16/2012	268386	0.0208	14	741.3	34.8	0.953	1.134	1.149	23.70	1633	13								
1/19/2012	268375	0.0251	1	744.7	33.2	0.955	1.113	1.187	23.74	1691	15								
1/22/2012	268366	0.0170	5	738.8	33.7	0.954	1.119	1.167	23.70	1659	10								
1/25/2012	268357	0.0261	1	748.3	33.2	0.956	1.115	1.191	23.68	1693	15								
1/28/2012	268346	0.0042	2	751.2	33.4	0.956	1.116	1.194	23.71	1698	2								
1/31/2012	268338	0.0175	14	744.8	34.8	0.953	1.135	1.153	23.61	1634	11								
Valid Samples:	10									Monthly Average:	14								
Scheduled Samples:	10									Standard Deviation:	6								
Percent Data Captured:	100%									Maximum:	27								
NOTES																			
DEFINITIONS and CALCULATIONS																			
T_{av} = average temperature in degrees Celcius																			
P_{av} = average station pressure in millimeters of mercury																			
$P_f = ((Temp \text{ in } {}^{\circ}\text{Kelvin} * Temp \text{ Slope}) + Temp \text{ Int.}) * 1.868$																			
$P_f = ((Temp \text{ in } {}^{\circ}\text{Kelvin} * 0.0664) + (-0.4213)) * 1.868$																			
$P_o/P_a = \text{pressure ratio of } P_f \text{ and } P_{av} = 1 - P_f/P_{av}$																			
$Q_a = \text{look up table volumetric flow rate}$																			
$Q_{std} = \text{sample volumetric flow rate corrected to standard conditions}$																			
$V_{std} = \text{sample volume corrected to standard conditions}$																			



PM₁₀ Analysis

The Doe Run Company

SAMPLER ID P2950										National Site #1 Ozark Insulation																									
Sample Date	Filter ID	PM10 Filter		T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _o /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³																							
		Net Wt.	g																																
1/4/2012	267821	0.0266	5	748.0	33.7	0.955	1.118	1.179	23.73	1679	16																								
1/7/2012	267812	0.0239	5	747.0	33.7	0.955	1.119	1.176	23.81	1681	14																								
1/10/2012	267802	0.0356	3	744.2	33.4	0.955	1.114	1.178	23.73	1677	21																								
1/13/2012	268400	0.0164	-6	746.5	32.4	0.957	1.101	1.204	23.72	1714	10																								
1/16/2012	268391	0.0198	14	741.3	34.8	0.953	1.131	1.146	23.80	1637	12																								
1/19/2012	268374	0.0191	1	744.7	33.2	0.955	1.111	1.185	23.68	1683	11																								
1/22/2012	268364	0.0135	5	738.8	33.7	0.954	1.117	1.165	23.79	1662	8																								
1/25/2012	268362	0.0147	1	748.3	33.2	0.956	1.112	1.189	23.70	1691	9																								
1/28/2012	268345	0.0079	2	751.2	33.4	0.956	1.114	1.191	23.77	1699	5																								
1/31/2012	268343	0.0221	14	744.8	34.8	0.953	1.132	1.151	23.75	1640	13																								
Valid Samples:	10																																		
Scheduled Samples:	10																																		
Percent Data Captured:	100%																																		
NOTES																																			
DEFINITIONS and CALCULATIONS																																			
T _{av} = average temperature in degrees Celcius																																			
P _{av} = average station pressure in millimeters of mercury																																			
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868																																			
P _f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868																																			
P _o /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																																			
Q _a = look up table volumetric flow rate																																			
Q _{std} = sample volumetric flow rate corrected to standard conditions																																			
V _{std} = sample volume corrected to standard conditions																																			
Monthly Average: 12																																			
Standard Deviation: 5																																			
Maximum: 21																																			
Minimum: 5																																			



PM₁₀ Analysis

The Doe Run Company

SAMPLER ID P2949										National Site #2 - Soccer Field													
Sample Date	Filter ID	PM10 Filter Net Wt.		T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _o /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³											
		2012	g																				
1/4/2012	267820	0.0185	5	748.0	33.7	0.955	1.115	1.176	23.50	1658	11												
1/7/2012	267811	0.0235	5	747.0	33.7	0.955	1.116	1.173	23.53	1656	14												
1/10/2012	267801	0.0379	3	744.2	33.4	0.955	1.112	1.175	23.50	1657	23												
1/13/2012	268399	0.0156	-6	746.5	32.4	0.957	1.098	1.201	23.45	1690	9												
1/16/2012	268390	0.0173	14	741.3	34.8	0.953	1.128	1.143	23.55	1615	11												
1/19/2012	268373	0.0187	1	744.7	33.2	0.955	1.108	1.182	23.53	1668	11												
1/22/2012	268363	0.0142	5	738.8	33.7	0.954	1.114	1.161	23.50	1638	9												
1/25/2012	268361	0.0151	1	748.3	33.2	0.956	1.110	1.186	23.22	1652	9												
1/28/2012	268344	0.0077	2	751.2	33.4	0.956	1.111	1.188	23.36	1666	5												
1/31/2012	268342	0.0154	14	744.8	34.8	0.953	1.129	1.148	23.72	1633	9												
Valid Samples: 10				Monthly Average: 11																			
Scheduled Samples: 10				Standard Deviation: 5																			
Percent Data Captured: 100%				Maximum: 23																			
NOTES																							
DEFINITIONS and CALCULATIONS																							
T _{av} = average temperature in degrees Celcius																							
P _{av} = average station pressure in millimeters of mercury																							
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868																							
P _f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868																							
P _o /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																							
Q _a = look up table volumetric flow rate																							
Q _{std} = sample volumetric flow rate corrected to standard conditions																							
V _{std} = sample volume corrected to standard conditions																							



PM₁₀ Analysis

The Doe Run Company

SAMPLER ID P2951										National Site #3 - Water Plant											
Sample Date	Filter ID	PM10								Elapsed Time	Sample Volume V _{std}	Mass Conc. PM ₁₀ μg/m ³									
		Net Wt.	T _{av}	P _{av}	P _f	Ratio P _o /P _a	Q _a	Q _{std}													
1/4/2012	267825	0.0194	5	748.0	33.7	0.955	1.122	1.183	23.50	1668	12										
1/7/2012	267815	0.0194	5	747.0	33.7	0.955	1.122	1.180	23.58	1670	12										
1/10/2012	267806	0.0326	3	744.2	33.4	0.955	1.118	1.182	23.49	1666	20										
1/13/2012	268397	0.0144	-6	746.5	32.4	0.957	1.105	1.209	23.51	1705	8										
1/16/2012	268388	0.0183	14	741.3	34.8	0.953	1.135	1.150	23.58	1626	11										
1/19/2012	268377	0.0197	1	744.7	33.2	0.955	1.114	1.188	23.50	1676	12										
1/22/2012	268368	0.0135	5	738.8	33.7	0.954	1.121	1.168	23.50	1647	8										
1/25/2012	268359	0.0124	1	748.3	33.2	0.956	1.116	1.193	23.46	1679	7										
1/28/2012	268348	0.0036	2	751.2	33.4	0.956	1.118	1.195	23.50	1686	2										
1/31/2012	268340	0.0160	14	744.8	34.8	0.953	1.136	1.154	23.49	1627	10										
Valid Samples: 10				Monthly Average: 10																	
Scheduled Samples: 10				Standard Deviation: 4																	
Percent Data Captured: 100%				Maximum: 20																	
Minimum: 2																					
NOTES																					
DEFINITIONS and CALCULATIONS																					
T_{av} = average temperature in degrees Celcius																					
P_{av} = average station pressure in millimeters of mercury																					
$P_f = ((Temp \text{ in } {}^{\circ}\text{K} * \text{Temp Slope}) + \text{Temp Int.}) * 1.868$																					
$P_f = ((Temp \text{ in } {}^{\circ}\text{K} * 0.0664) + (-0.4213)) * 1.868$																					
P_o/P_a = pressure ratio of P_f and P_{av} = $1 - P_f/P_{av}$																					
Q_a = look up table volumetric flow rate																					
Q_{std} = sample volumetric flow rate corrected to standard conditions																					
V_{std} = sample volume corrected to standard conditions																					



PM₁₀ Analysis

The Doe Run Company

Lab Results (Lead and Cadmium)



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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0062
Date Received: 01/18/12
Analysis Method: 40 CFR §50
Appendix G

Location National

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
120297	8498319	01/03/12	#3 East - WTP	32	< 10	01/26/12 - DS
120300	8498310	01/04/12	#3 East - WTP	82	< 10	01/26/12 - DS
120303	8461900	01/05/12	#3 East - WTP	53	< 10	01/26/12 - DS
120306	8461891	01/06/12	#3 East - WTP	37	< 10	01/26/12 - DS
120319	8498323	01/03/12	#1 Ozark	138	< 10	01/26/12 - DS
120320	8498324	01/03/12	#2 Soccer	84	< 10	01/26/12 - DS
120321	8498313	01/04/12	#1 Ozark	47	< 10	01/26/12 - DS
120322	8498314	01/04/12	#2 Soccer	41	< 10	01/26/12 - DS
120323	8498304	01/05/12	#1 Ozark	127	< 10	01/26/12 - DS
120324	8498305	01/05/12	#2 Soccer	67	< 10	01/26/12 - DS
120325	8461894	01/06/12	#1 Ozark	45	< 10	01/26/12 - DS
120326	8461895	01/06/12	#2 Soccer	45	< 10	01/26/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0078
Date Received: 01/25/12
Analysis Method: 40 CFR §50
Appendix G

Location **National**

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
120416	8461882	01/09/12	#3 East - WTP	41	< 10	02/01/12 - DS
120419	8461872	01/10/12	#3 East - WTP	45	< 10	02/01/12 - DS
120422	8461863	01/11/12	#3 East - WTP	21	< 10	02/01/12 - DS
120425	8461852	01/12/12	#3 East - WTP	53	< 10	02/01/12 - DS
120428	8461843	01/13/12	#3 East - WTP	21	< 10	02/01/12 - DS
120444	8461885	01/09/12	#1 Ozark	59	< 10	02/01/12 - DS
120445	8461886	01/09/12	#2 Soccer	74	< 10	02/01/12 - DS
120446	8461875	01/10/12	#1 Ozark	16	< 10	02/01/12 - DS
120447	8461876	01/10/12	#2 Soccer	43	< 10	02/01/12 - DS
120448	8461866	01/11/12	#1 Ozark	24	< 10	02/01/12 - DS
120449	8461867	01/11/12	#2 Soccer	34	< 10	02/01/12 - DS
120450	8461849	01/12/12	#1 Ozark	14	< 10	02/01/12 - DS
120451	8461850	01/12/12	#2 Soccer	14	< 10	02/01/12 - DS
120452	8461840	01/13/12	#1 Ozark	25	< 10	02/01/12 - DS
120453	8461841	01/13/12	#2 Soccer	46	< 10	02/01/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0093
Date Received: 02/02/12
Analysis Method: 40 CFR §50
Appendix G

Location

National

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
120525	8461833	01/16/12	#3 East - WTP	10	< 10	02/15/12 - DS
120528	8461824	01/17/12	#3 East - WTP	< 10	< 10	02/10/12 - DS
120531	8461816	01/18/12	#3 East - WTP	14	< 10	02/10/12 - DS
120534	8461805	01/19/12	#3 East - WTP	18	< 10	02/10/12 - DS
120537	8462397	01/20/12	#3 East - WTP	14	< 10	02/10/12 - DS
120553	8461830	01/16/12	#1 Ozark	31	< 10	02/10/12 - DS
120554	8461831	01/16/12	#2 Soccer	18	< 10	02/10/12 - DS
120555	8461821	01/17/12	#1 Ozark	20	< 10	02/10/12 - DS
120556	8461822	01/17/12	#2 Soccer	11	< 10	02/10/12 - DS
120557	8461819	01/18/12	#1 Ozark	28	< 10	02/10/12 - DS
120558	8461820	01/18/12	#2 Soccer	35	< 10	02/10/12 - DS
120559	8461802	01/19/12	#1 Ozark	11	< 10	02/10/12 - DS
120560	8461803	01/19/12	#2 Soccer	23	< 10	02/10/12 - DS
120561	8462400	01/20/12	#1 Ozark	13	< 10	02/10/12 - DS
120562	8461801	01/20/12	#2 Soccer	18	< 10	02/10/12 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0124

Date Received: 02/10/12

Analysis Method: 40 CFR §50
Appendix G

Location National

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
120688	8462386	01/23/12	#3 East - WTP	25	< 10	03/02/12 - DS
120691	8462378	01/24/12	#3 East - WTP	20	< 10	03/02/12 - DS
120694	8462369	01/25/12	#3 East - WTP	11	< 10	03/02/12 - DS
120697	8462360	01/26/12	#3 East - WTP	< 10	< 10	03/02/12 - DS
120700	8462350	01/27/12	#3 East - WTP	11	< 10	03/02/12 - DS
120703	8462340	01/30/12	#3 East - WTP	25	< 10	03/02/12 - DS
120707	8462331	01/31/12	#3 East - WTP	62	< 10	03/02/12 - DS
120729	8462383	01/23/12	#1 Ozark	28	< 10	03/02/12 - DS
120730	8462384	01/23/12	#2 Soccer	28	< 10	03/02/12 - DS
120731	8462381	01/24/12	#1 Ozark	16	< 10	03/02/12 - DS
120732	8462382	01/24/12	#2 Soccer	34	< 10	03/02/12 - DS
120733	8462372	01/25/12	#1 Ozark	< 10	< 10	03/02/12 - DS
120734	8462373	01/25/12	#2 Soccer	< 10	< 10	03/02/12 - DS
120735	8462356	01/26/12	#1 Ozark	< 10	< 10	03/02/12 - DS
120736	8462355	01/26/12	#2 Soccer	< 10	< 10	03/06/12 - DS
120737	8462353	01/27/12	#1 Ozark	13	< 10	03/06/12 - DS
120738	8462354	01/27/12	#2 Soccer	28	< 10	03/06/12 - DS
120739	8462337	01/30/12	#1 Ozark	33	< 10	03/06/12 - DS
120740	8462338	01/30/12	#2 Soccer	48	< 10	03/06/12 - DS
120741	8462335	01/31/12	#1 Ozark	114	< 10	03/06/12 - DS
120742	8462336	01/31/12	#2 Soccer	34	< 10	03/06/12 - DS

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3/6/12

Date

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120 East Davis Street
P.O. Box 30
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Phone: (660) 248-1911
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<http://www.inovatia.com>

ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0062
Date Received: 01/18/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
120289	8498321	01/03/12	#4 Primary	27	< 10	01/26/12 - DS
120290	8498322	01/03/12	#4 QA	23	< 10	01/26/12 - DS
120291	8498312	01/04/12	#4 Primary	159	< 10	01/26/12 - DS
120292	8498302	01/05/12	#4 Primary	59	< 10	01/26/12 - DS
120293	8498303	01/05/12	#4 QA	62	< 10	01/26/12 - DS
120294	8461893	01/06/12	#4 Primary	33	< 10	01/26/12 - DS

Submitted by:

Digitally signed by Jennifer
Vandelicht
DN: cn=Jennifer Vandelicht,
o=Inovatia Laboratories, LLC,
ou=Quality Assurance,
email=jvandelicht@inovatia.
com, c=US
Date: 2012.01.27 09:02:31
-06'00'

1/26/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0078
Date Received: 01/25/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
120407	8461884	01/09/12	#4 Primary	99	< 10	02/01/12 - DS
120408	8461874	01/10/12	#4 Primary	48	< 10	02/01/12 - DS
120409	8461877	01/10/12	#4 QA	48	< 10	02/01/12 - DS
120410	8461865	01/11/12	#4 Primary	12	< 10	02/01/12 - DS
120411	8461854	01/12/12	#4 Primary	45	< 10	02/01/12 - DS
120412	8461855	01/12/12	#4 QA	57	< 10	02/01/12 - DS
120413	8461845	01/13/12	#4 Primary	26	< 10	02/01/12 - DS

Digitally signed by Jennifer Vandelicht
DRI-0078-Jennifer Vandelicht;
o=Inovatia Laboratories, LLC;
ou=Quality Assurance;
email=jvandelicht@inovatia.
com; c=US
Date: 2012.02.02 09:04:23
-06'00'

Submitted by:

2/2/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0093
Date Received: 02/02/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
120516	8461835	01/16/12	#4 Primary	16	< 10	02/15/12 - DS
120517	8461826	01/17/12	#4 Primary	< 10	< 10	02/15/12 - DS
120518	8461836	01/17/12	#4 QA	11	< 10	02/15/12 - DS
120519	8461818	01/18/12	#4 Primary	23	< 10	02/15/12 - DS
120520	8461807	01/19/12	#4 Primary	31	< 10	02/15/12 - DS
120521	8461808	01/19/12	#4 QA	31	< 10	02/15/12 - DS
120522	8462399	01/20/12	#4 Primary	28	< 10	02/15/12 - DS

Submitted by:


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Vandelicht
DN: cn=Jennifer.Vandelicht,
ou=Inovatia Laboratories, LLC,
ou=Quality Assurance,
email=j.vandelicht@inovatia.com,
c=US
Date: 2012.02.16 15:04:57 -06'00'

2/16/12

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 12-0124
Date Received: 02/10/12
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
120676	8462388	01/23/12	#4 Primary	11	< 10	03/02/12 - DS
120677	8462380	01/24/12	#4 Primary	26	< 10	03/02/12 - DS
120678	8462389	01/24/12	#4 QA	25	< 10	03/02/12 - DS
120679	8462371	01/25/12	#4 Primary	< 10	< 10	03/02/12 - DS
120680	8462358	01/26/12	#4 Primary	< 10	< 10	03/02/12 - DS
120681	8462357	01/26/12	#4 QA	< 10	< 10	03/02/12 - DS
120682	8462352	01/27/12	#4 Primary	13	< 10	03/02/12 - DS
120683	8462342	01/30/12	#4 Primary	< 10	< 10	03/02/12 - DS
120684	8462333	01/31/12	#4 Primary	16	< 10	03/02/12 - DS
120685	8462334	01/31/12	#4 QA	18	< 10	03/02/12 - DS

Submitted by:

Jennifer Vandelicht
Digitally signed by Jennifer
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DN: cn=Jennifer Vandelicht,
ou=Inovatia Laboratories, LLC,
ou=Quality Assurance,
email=jvandelicht@inovatia.
com, o=US
Date: 2012.03.06 13:56:32
-06'00'

3/6/12

Date

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Meteorological Data

Meteorological Report
The Doe Run Company
Wind Speed

Average Interval: 01 Hour

Units: mph

Sampling Frequency: 01 Second

Site Name: Rivermines

2012	Hour	24 Hour Avg																								
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1-Jan	10.7	9.7	7.9	10.6	12.7	10.1	10.0	9.0	10.3	9.7	11.1	11.9	11.4	12.1	13.5	9.6	10.5	9.9	7.5	6.4	6.7	8.3	13.7	10.8	13.7	10.2
2-Jan	10.9	9.0	8.4	7.3	6.9	7.1	7.8	9.1	13.7	12.8	15.4	13.7	14.2	14.5	15.0	13.3	14.2	14.3	12.9	11.0	10.8	10.4	5.2	1.6	15.4	10.8
3-Jan	3.2	1.6	0.8	0.4	0.3	2.0	1.9	0.3	0.4	3.5	4.5	4.5	7.0	8.2	8.5	8.8	7.6	5.9	7.5	9.7	9.2	10.6	7.0	6.0	10.6	5.0
4-Jan	6.1	6.0	6.7	4.9	4.8	5.7	5.8	4.8	6.0	6.6	6.0	6.2	6.5	6.8	6.7	7.4	5.4	5.3	4.0	2.3	2.0	2.4	2.3	2.8	7.4	5.2
5-Jan	0.9	3.0	1.5	0.0	1.3	0.6	0.2	1.9	3.0	6.4	7.3	8.0	8.5	8.4	8.4	7.2	5.7	5.3	6.9	5.5	5.2	5.7	6.2	5.3	8.5	4.7
6-Jan	4.5	4.7	4.5	6.0	6.0	6.3	6.6	6.1	7.8	10.4	10.3	11.8	11.7	11.3	10.6	9.4	7.5	6.2	5.4	1.1	0.3	4.9	3.9	0.9	11.8	6.6
7-Jan	1.2	2.9	5.8	3.6	1.3	1.2	0.9	0.0	0.2	4.5	3.5	5.3	5.7	6.3	6.0	5.7	4.0	0.4	0.0	0.1	0.8	0.4	0.3	0.6	6.3	2.5
8-Jan	0.1	0.4	0.1	0.0	0.4	0.0	0.0	0.7	0.0	0.3	2.5	3.5	3.5	4.7	4.6	3.7	3.7	1.3	3.0	2.7	2.0	0.5	0.1	0.2	4.7	1.6
9-Jan	0.4	0.3	0.3	0.2	0.0	0.3	0.4	0.9	0.8	1.7	3.3	4.2	3.9	3.6	3.7	2.4	1.0	0.2	0.1	0.2	0.7	0.3	1.9	1.0	4.2	1.3
10-Jan	1.7	1.3	2.7	1.6	0.6	1.6	2.9	2.2	0.5	0.7	0.9	4.0	3.4	3.1	4.1	3.3	1.4	0.9	1.0	0.2	0.2	0.3	0.2	0.3	4.1	1.6
11-Jan	3.4	2.6	0.8	0.4	2.8	1.7	1.7	0.6	4.5	2.8	2.9	3.0	3.7	5.2	5.0	4.4	0.7	0.1	0.5	2.2	1.2	3.1	5.3	5.5	5.5	2.7
12-Jan	5.8	10.7	9.6	9.2	7.6	6.6	8.4	8.5	10.6	6.8	8.4	10.1	9.8	9.5	8.8	8.8	9.9	9.2	9.4	7.2	6.9	6.9	4.6	5.7	10.7	8.3
13-Jan	6.5	5.8	5.6	5.2	3.5	3.8	5.4	6.4	4.8	5.2	6.1	6.9	5.7	6.6	6.5	6.8	4.9	3.3	2.3	1.1	0.6	2.1	1.8	0.6	6.9	4.5
14-Jan	0.0	0.6	0.0	0.5	0.6	0.9	4.0	4.1	6.7	4.5	7.0	6.8	8.9	10.3	11.5	10.5	9.6	6.2	2.7	2.0	1.5	0.9	0.0	0.4	11.5	4.2
15-Jan	1.5	1.2	0.8	0.7	0.8	0.4	0.4	0.3	4.1	8.4	8.3	10.7	11.3	10.6	10.8	9.8	9.4	7.6	7.9	8.5	10.8	10.5	14.3	14.2	14.3	6.8
16-Jan	12.8	9.9	8.9	9.1	8.2	7.5	12.8	15.4	16.6	15.5	17.2	16.4	14.5	15.1	14.6	13.2	12.8	12.0	13.9	14.4	13.9	12.8	12.5	12.2	17.2	13.0
17-Jan	13.4	13.6	14.5	15.5	15.4	15.9	11.3	9.5	10.8	12.1	11.8	10.4	11.7	11.2	10.2	11.7	11.9	11.6	6.7	8.5	6.1	3.6	5.0	6.1	15.8	10.8
18-Jan	5.0	2.8	1.7	1.5	0.3	0.0	0.2	0.1	0.1	3.4	2.9	4.2	4.7	5.5	7.3	7.6	6.9	4.2	4.0	5.8	5.6	5.3	5.8	3.4	7.6	3.7
19-Jan	2.3	4.5	3.3	2.4	5.9	3.8	1.9	0.1	0.3	1.0	2.2	3.3	4.6	4.8	5.2	6.5	10.3	7.5	5.6	4.8	3.9	2.7	4.1	3.8	10.3	4.0
20-Jan	4.3	4.1	4.4	3.8	4.7	5.6	4.8	5.1	5.5	4.8	5.5	5.8	5.6	5.3	5.1	4.3	2.9	2.6	3.5	5.5	5.4	7.5	8.6	10.3	10.3	5.2
21-Jan	8.5	10.7	10.4	10.3	9.8	8.4	7.3	7.1	7.1	5.8	5.3	4.8	5.3	4.4	2.8	3.7	3.8	4.3	4.2	4.0	5.1	5.2	5.5	6.9	10.7	6.3
22-Jan	7.1	6.4	6.3	6.4	6.5	6.0	5.3	5.3	6.4	9.3	10.4	10.1	9.8	10.0	10.2	7.9	7.8	10.4	8.5	6.2	9.3	8.3	10.4	10.2	10.4	8.1
23-Jan	10.9	12.4	12.5	11.8	10.7	10.2	11.2	9.8	9.6	9.0	7.6	7.1	7.2	6.8	9.0	9.3	6.7	4.3	0.9	0.3	0.1	1.1	1.0	0.7	12.5	7.1
24-Jan	0.4	0.7	0.0	0.7	3.3	1.2	0.6	0.1	0.3	1.3	0.9	1.8	2.1	3.0	2.4	3.3	2.4	2.3	2.2	0.5	2.0	0.6	0.2	0.0	3.3	1.3
25-Jan	0.2	1.6	2.8	2.8	3.1	3.4	3.0	2.4	0.8	1.2	2.9	2.6	3.0	2.7	4.3	4.7	4.8	4.8	6.0	4.0	3.8	1.6	0.9	0.9	6.0	2.9
26-Jan	1.4	0.3	1.2	3.0	3.8	2.8	0.8	0.2	1.5	4.3	4.3	6.1	4.6	5.5	5.0	4.0	5.0	4.7	5.1	3.6	2.1	0.4	0.9	1.3	6.1	3.0
27-Jan	0.5	2.7	3.2	1.9	0.4	0.5	0.9	0.9	0.8	4.0	2.8	1.4	2.4	2.4	2.2	3.6	2.8	1.6	2.0	3.1	1.5	0.6	0.7	1.0	4.0	1.8
28-Jan	2.7	8.4	10.5	10.0	5.1	5.6	5.4	4.1	4.5	5.5	5.4	8.0	7.9	7.0	6.4	5.5	4.6	1.2	1.4	0.6	1.6	1.7	4.1	5.9	10.5	5.1
29-Jan	5.7	4.9	4.5	4.6	5.7	6.7	7.4	6.7	8.3	7.7	8.2	6.7	6.5	5.9	7.3	5.0	3.2	0.6	0.3	1.0	0.2	0.0	0.0	0.1	8.3	4.5
30-Jan	1.4	1.9	1.6	0.8	0.1	1.4	1.8	5.9	9.1	11.2	12.0	12.7	12.0	12.3	11.8	8.3	9.5	9.1	8.8	8.8	10.7	10.2	10.4	10.4	12.7	7.6
31-Jan	10.3	9.4	7.0	6.8	5.2	6.7	7.0	8.1	9.6	12.3	13.5	13.6	13.4	14.8	13.3	12.4	10.7	9.3	9.4	8.5	8.2	9.2	9.6	5.5	14.8	9.7

	Maximum Hour//Monthly Average	17.2	5.5
	Total Hours in Month	744	
	Valid Hours//Percent Data Captured	744	100.0%

Meteorological Report
The Doe Run Company
Wind Direction

Average Interval: 01 Hour

Units: Degrees

Sampling Frequency: 01 Second

Site Name: Rivermines

2012	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24 Hour Avg
Day																										
1-Jan	217	229	256	283	282	281	290	290	288	290	301	304	295	297	304	290	291	303	301	293	294	298	311	305	287	
2-Jan	306	300	301	292	285	282	280	287	303	304	311	304	302	306	301	305	313	317	325	329	329	326	330	325	307	
3-Jan	313	327	294	264	205	187	239	213	251	203	223	221	207	214	190	189	189	184	186	195	198	202	205	206	221	
4-Jan	213	200	206	203	212	222	228	227	244	256	279	284	266	278	286	299	300	308	308	272	257	249	251	249	254	
5-Jan	257	250	245	176	228	275	71	232	248	252	251	245	249	247	240	246	224	206	201	210	216	207	222	216	226	
6-Jan	213	222	221	228	224	220	217	221	227	232	222	218	225	223	218	218	225	207	199	260	263	298	321	260	233	
7-Jan	274	305	325	323	323	329	330	0	241	343	20	353	346	345	346	331	352	113	343	190	188	189	341	168	267	
8-Jan	327	334	316	171	342	168	167	21	30	343	11	22	30	33	29	41	26	32	25	26	38	28	16	112	112	
9-Jan	351	244	194	248	174	188	244	251	215	248	309	327	327	338	339	274	262	195	168	189	179	168	198	213	243	
10-Jan	210	210	221	206	25	221	233	212	252	313	46	98	99	75	71	77	59	53	74	345	52	106	24	151	143	
11-Jan	34	313	336	349	315	306	307	269	301	292	280	268	280	292	296	296	296	284	196	239	247	226	237	272	297	272
12-Jan	306	309	296	293	287	289	295	288	307	288	286	286	287	277	281	282	281	277	278	291	282	268	270	267	281	286
13-Jan	276	274	287	289	285	273	278	291	280	274	273	261	265	274	265	258	266	252	219	197	231	242	232	241	262	
14-Jan	154	156	158	330	328	254	199	187	178	187	236	275	291	293	302	320	334	311	293	327	236	220	167	218	248	
15-Jan	219	216	212	198	231	222	325	328	174	178	168	176	175	170	173	180	178	176	182	187	185	185	192	194	201	
16-Jan	198	195	189	189	191	189	190	194	195	199	203	203	206	202	198	202	197	195	192	191	196	198	196	202	196	
17-Jan	202	196	201	212	217	223	272	287	297	289	290	287	293	296	297	310	317	318	305	315	312	306	318	319	278	
18-Jan	312	302	317	303	302	284	115	116	177	163	183	181	164	189	196	191	183	174	178	185	184	199	201	208	209	
19-Jan	201	211	193	212	223	218	211	82	332	225	162	32	9	17	15	39	18	16	25	34	38	49	47	51	111	
20-Jan	45	48	59	48	55	73	73	91	99	87	102	105	92	102	100	65	24	34	18	347	344	337	334	334	126	
21-Jan	339	326	336	340	335	343	358	356	5	359	10	17	13	28	39	75	92	98	93	135	119	126	149	153	177	
22-Jan	150	149	152	173	166	163	156	164	169	174	179	176	176	173	180	176	170	167	180	181	210	199	195	190	174	
23-Jan	186	210	241	238	247	254	260	268	271	273	268	270	266	259	253	246	253	259	234	197	181	194	187	219	239	
24-Jan	287	209	168	238	250	205	206	182	246	286	130	119	123	8	51	33	75	72	89	128	76	60	358	193	158	
25-Jan	316	56	68	61	85	114	89	69	97	92	89	24	55	73	69	52	45	48	54	72	80	72	19	21	76	
26-Jan	23	24	358	358	342	329	318	291	294	310	301	319	289	306	314	304	304	295	297	280	215	295	266	275	279	
27-Jan	265	276	285	279	283	267	264	251	286	309	269	253	160	155	185	139	149	101	77	158	238	154	39	235	211	
28-Jan	262	287	306	306	289	287	290	279	278	292	282	282	275	281	288	273	264	225	184	246	259	251	231	231	269	
29-Jan	232	229	232	232	227	234	232	240	247	250	269	278	271	291	297	289	309	345	42	108	13	328	0	185	224	
30-Jan	214	218	199	213	314	247	233	220	219	216	218	216	219	206	207	204	201	187	185	185	190	196	192	198	212	
31-Jan	198	205	201	192	199	191	189	188	193	193	196	209	218	219	216	211	213	204	190	196	204	205	219	202		

BARR	Total Hours in Month	744
	Valid Hours	744
	Percent Data Captured	100.0%

Meteorological Report

The Doe Run Company

$\Sigma \theta$

Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

2012	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24 Hour Avg
Day																										
1-Jan	17.3	18.6	17.8	21.5	21.3	21.4	21.4	20.4	20.7	21.6	21.0	19.6	22.4	21.0	20.2	22.4	20.4	17.8	18.3	20.1	17.9	18.5	17.1	18.3	20	
2-Jan	16.3	17.5	17.7	20.3	18.6	18.4	18.9	20.2	19.8	20.7	18.0	21.4	21.8	20.2	19.3	19.8	15.0	13.9	12.9	13.7	13.4	13.7	10.3	10.4	17	
3-Jan	10.5	10.7	8.1	5.0	3.8	10.2	9.6	6.4	18.9	27.4	25.7	33.7	24.5	22.1	19.9	18.0	15.7	15.3	16.6	16.3	15.8	14.9	16.6	16.0	16	
4-Jan	14.7	12.3	14.0	11.9	13.8	16.0	16.0	15.1	16.9	18.6	22.2	23.9	25.4	21.6	22.6	20.3	18.9	12.0	11.4	13.8	11.3	14.6	9.3	9.7	16	
5-Jan	3.7	8.3	9.3	2.7	8.9	18.3	3.7	11.1	13.3	15.7	18.0	20.9	21.5	20.1	20.5	18.8	15.5	11.7	11.5	11.9	14.2	14.3	14.3	12.0	13	
6-Jan	13.1	15.3	15.0	14.5	13.1	11.8	12.5	13.7	17.6	17.4	18.6	19.0	18.7	20.1	18.0	17.1	14.8	14.0	13.5	19.7	7.9	14.8	7.9	7.3	15	
7-Jan	6.5	13.0	10.8	14.5	17.5	7.1	5.1	0.0	9.4	21.6	22.8	27.8	25.9	23.6	25.8	17.5	13.1	6.5	0.1	0.1	2.1	5.6	4.2	9.0	12	
8-Jan	0.8	2.2	1.9	0.5	4.5	0.2	0.1	16.4	2.0	8.7	24.8	18.0	22.0	21.6	18.5	19.4	16.0	12.0	14.3	16.7	18.2	8.5	5.6	3.5	11	
9-Jan	24.8	24.6	16.9	10.2	0.7	2.4	11.6	14.6	11.1	19.7	24.9	33.0	31.4	31.7	30.4	26.9	11.6	7.2	0.8	2.1	4.3	9.0	12.2	23.7	16	
10-Jan	21.4	12.3	18.5	13.6	18.4	19.7	18.3	14.9	9.6	19.3	14.8	26.4	28.0	25.7	24.4	20.6	11.9	6.3	7.4	3.2	3.5	13.7	13.4	3.1	15	
11-Jan	39.0	34.1	7.7	8.4	9.8	28.0	24.1	4.6	16.8	16.2	19.1	15.9	20.6	20.5	20.7	20.8	9.8	0.7	4.7	7.9	11.2	13.3	26.1	19.6	17	
12-Jan	15.3	16.3	19.9	20.8	20.0	19.6	20.5	20.8	19.2	22.5	21.6	21.2	19.8	22.4	22.2	23.0	21.5	21.9	21.5	22.7	19.9	20.1	20.0	21.8	21	
13-Jan	21.7	20.2	19.5	22.4	19.4	22.7	19.6	21.8	22.1	20.5	20.4	23.5	22.4	24.4	22.9	21.6	17.8	14.8	13.5	5.7	8.1	8.8	7.5	5.8	18	
14-Jan	0.0	23.7	0.6	8.5	6.7	24.9	46.9	37.5	19.0	18.3	19.7	22.7	23.3	21.4	19.6	15.4	14.3	10.9	13.3	12.1	13.7	8.7	0.7	6.7	16	
15-Jan	15.6	12.7	19.0	8.9	10.6	6.4	9.9	22.1	39.5	18.9	23.0	20.0	19.9	21.0	20.9	18.7	18.3	17.6	20.4	19.9	16.8	16.9	15.3	16.1	18	
16-Jan	15.5	18.6	17.9	18.4	19.0	20.9	16.8	15.9	14.5	16.4	17.2	17.3	18.6	17.4	15.5	17.2	17.3	15.8	16.2	15.3	15.8	15.3	15.1	15.2	17	
17-Jan	17.0	15.4	15.1	17.0	17.5	19.7	20.8	19.9	20.6	20.9	21.2	21.5	22.6	20.3	20.4	18.1	14.2	13.5	16.2	14.2	15.5	14.0	8.9	10.8	17	
18-Jan	13.2	16.0	13.1	10.4	4.5	0.0	0.8	1.2	9.6	32.6	36.9	37.3	27.8	23.2	18.2	18.2	17.0	15.9	17.5	14.8	15.4	16.2	17.9	14.0	16	
19-Jan	16.3	15.9	24.1	21.2	16.8	18.4	12.2	10.2	25.9	18.7	30.5	34.5	37.1	25.5	26.1	22.7	14.2	15.2	15.9	17.5	17.9	17.2	18.6	19.0	20	
20-Jan	19.5	20.1	20.4	19.2	21.9	19.4	21.9	20.6	21.7	20.8	22.4	22.5	22.1	20.3	19.2	21.0	18.9	15.4	13.0	14.3	16.3	14.4	14.6	15.3	19	
21-Jan	15.1	13.4	15.0	15.5	15.2	14.8	15.6	16.1	14.7	16.6	15.1	18.0	16.4	20.8	35.7	24.0	24.8	23.6	22.2	23.4	20.0	24.0	23.1	20.4	19	
22-Jan	23.4	21.6	25.8	20.6	19.9	21.5	24.7	28.6	28.8	23.6	19.7	19.9	19.0	18.1	16.9	22.3	20.7	19.8	17.5	15.7	16.5	13.5	13.4	13.2	20	
23-Jan	14.9	16.9	18.8	19.0	20.7	20.9	18.7	20.8	20.9	22.6	20.7	21.4	23.3	24.3	21.7	20.0	18.5	17.9	9.0	4.1	0.9	36.5	8.2	18.1	18	
24-Jan	6.7	12.3	0.3	9.5	11.7	19.9	8.2	1.0	4.7	21.9	31.6	54.3	58.4	30.2	36.7	31.5	31.9	11.7	17.6	10.4	27.0	6.0	4.7	0.1	19	
25-Jan	4.5	9.1	14.8	14.2	21.8	24.2	18.2	22.4	19.2	11.0	25.3	21.6	20.4	19.9	19.4	20.6	21.8	19.9	20.2	19.1	21.8	22.6	13.8	9.7	18	
26-Jan	10.6	4.3	11.8	14.3	14.8	11.9	7.2	5.7	12.3	15.5	22.3	14.6	19.2	18.9	18.0	20.0	17.7	18.8	16.6	14.1	13.1	34.4	7.0	13.3	15	
27-Jan	14.9	15.7	18.5	13.9	8.5	15.4	5.8	7.1	14.2	23.9	20.6	42.2	40.5	35.7	21.9	25.0	20.4	19.6	14.8	40.5	47.6	5.7	8.8	12.2	21	
28-Jan	14.6	19.0	18.2	16.8	18.7	18.0	17.2	16.3	21.6	22.1	23.8	23.2	23.1	26.7	26.0	24.3	19.4	10.2	3.6	5.3	7.5	12.3	14.2	14.4	17	
29-Jan	15.3	14.8	15.2	14.0	15.0	15.3	14.4	16.3	17.2	19.1	22.1	23.6	24.1	31.2	23.7	23.9	19.9	5.3	6.9	39.3	15.5	0.4	0.0	1.9	16	
30-Jan	15.1	14.0	11.4	11.0	9.4	16.0	16.8	13.1	15.5	15.6	17.4	18.9	18.5	17.4	17.6	16.4	14.4	16.3	15.6	14.7	15.5	16.2	15			
31-Jan	16.5	17.7	19.6	15.2	17.9	17.5	20.9	17.1	18.0	15.7	17.5	19.8	20.5	18.1	18.3	16.8	16.5	14.6	15.3	14.8	16.1	15.5	16.3	17		

BARR	Total Hours in Month	744
	Valid Hours	744
	Percent Data Captured	100.0%

Meteorological Report
The Doe Run Company
Temperature

Average Interval: 01 Hour

Units: Deg. C

Sampling Frequency: 01 Second

Site Name: Rivermines

2012	Day	Hour																								24 Hour	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max	Avg
	1-Jan	13	12	11	9	7	6	6	5	6	7	8	9	9	9	9	8	7	6	5	4	4	3	3	2	12.6	7.0
	2-Jan	1	0	-1	-1	-2	-2	-2	-3	-2	-1	0	1	1	1	1	1	0	-1	-1	-2	-3	-4	-5	-7	1.5	-1.2
	3-Jan	-7	-8	-9	-9	-10	-10	-11	-11	-7	-3	-1	2	3	4	4	4	3	2	1	0	0	0	0	1	4.4	-2.5
	4-Jan	1	1	1	1	1	2	2	1	4	6	9	10	12	13	13	12	10	8	7	4	3	2	0	-1	12.9	5.1
	5-Jan	-1	-1	0	-1	-2	-2	-2	-2	3	10	14	17	18	19	20	19	18	15	14	13	13	12	11	11	19.9	9.1
	6-Jan	11	11	10	10	9	9	9	9	11	13	16	17	18	20	20	20	18	16	15	12	9	10	10	7	19.9	12.9
	7-Jan	5	4	6	6	4	4	4	2	4	7	8	10	11	11	12	11	10	6	4	3	1	-1	-1	-2	11.6	5.4
	8-Jan	-2	-3	-3	-4	-4	-5	-5	-5	-2	1	3	5	6	6	6	6	5	5	5	5	4	4	3	6.4	1.6	
	9-Jan	1	1	0	-1	-2	-3	-3	-3	-1	3	5	8	9	10	10	11	10	5	2	0	-1	-2	-3	-3	10.7	2.2
	10-Jan	-3	-4	-4	-4	-5	-6	-5	-5	-1	3	7	10	11	12	12	11	10	7	5	3	4	4	4	4	11.6	2.9
	11-Jan	4	4	4	4	4	4	4	4	5	5	6	6	8	10	12	12	11	6	3	2	1	1	3	4	12.0	5.3
	12-Jan	4	3	1	-1	-3	-4	-5	-6	-6	-5	-5	-6	-5	-5	-6	-6	-6	-7	-8	-8	-7	-8	-8	-8	4.4	-4.8
	13-Jan	-8	-8	-7	-7	-8	-7	-7	-7	-7	-6	-4	-3	-2	-1	-1	-1	-2	-3	-4	-6	-8	-8	-9	-9	-0.7	-5.6
	14-Jan	-10	-10	-10	-9	-8	-7	-3	-2	-2	1	4	6	6	6	5	4	2	0	-1	-2	-3	-4	-5	-6	6.3	-1.9
	15-Jan	-6	-7	-7	-7	-7	-8	-8	-8	-3	1	3	4	6	7	7	7	6	5	4	4	6	6	7	8	8.4	0.8
	16-Jan	9	9	9	9	9	9	10	10	12	13	15	16	17	16	17	16	15	16	16	17	17	17	18	17.9	13.7	
	17-Jan	18	18	18	19	19	19	12	9	6	4	2	1	0	0	0	0	0	-2	-2	-3	-4	-4	-5	-5	19.3	5.0
	18-Jan	-6	-7	-8	-9	-10	-10	-11	-11	-7	-5	-3	-1	0	1	2	2	0	-1	-2	-1	-2	-2	-1	-1	1.8	-3.9
	19-Jan	-1	-1	0	0	1	1	0	0	1	3	4	5	6	7	7	6	2	-1	-2	-2	-3	-4	-5	-5	6.8	0.7
	20-Jan	-6	-6	-7	-7	-6	-6	-6	-5	-3	-2	-1	0	0	1	0	1	0	-1	-1	-2	-2	-3	-3	-3	0.8	-3.0
	21-Jan	-4	-4	-4	-5	-5	-5	-5	-5	-6	-5	-5	-4	-3	-3	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1.9	-3.5
	22-Jan	-2	-2	-2	-2	-1	-1	0	0	1	1	3	4	5	6	6	7	7	9	10	12	14	13	14	14	13.8	4.8
	23-Jan	13	13	12	9	7	6	5	4	4	6	6	7	8	10	11	11	11	9	6	3	0	-1	-2	-3	13.4	6.5
	24-Jan	-3	-4	-4	-5	-4	-5	-6	-6	-1	2	4	5	7	9	10	10	10	8	6	3	1	-1	-1	-2	10.0	1.4
	25-Jan	-2	-1	1	1	1	1	1	1	1	2	2	2	2	3	3	3	2	1	1	1	1	2	2	2	3.3	1.3
	26-Jan	2	2	2	2	1	1	1	1	2	2	3	3	3	3	4	4	4	4	4	3	2	1	1	1	3.9	2.2
	27-Jan	1	1	2	1	0	0	-1	-1	1	3	4	4	5	5	6	6	6	5	5	4	4	4	4	4	6.5	3.1
	28-Jan	4	4	3	1	0	0	-1	-1	1	2	4	6	6	7	7	7	6	4	0	-2	-3	-3	0	2	6.9	2.3
	29-Jan	2	2	2	2	3	3	3	3	5	7	9	10	11	11	12	11	10	7	3	1	0	-1	-2	-2	11.5	4.7
	30-Jan	-2	-2	-3	-3	-3	-3	-1	5	9	12	13	14	16	18	18	17	18	16	13	12	13	13	12	18.1	9.0	
	31-Jan	12	12	12	11	11	10	10	10	11	13	14	16	18	18	18	18	17	17	16	15	15	15	15	18.1	14.2	
																										Maximum Hour//Monthly Average	19.9
																										Total Hours in Month	744
																										Valid Hours	744
																										Percent Data Captured	100.0%



Meteorological Report
The Doe Run Company
Site Pressure

Site Name: Rivermlines

Average Interval: 01 Hour

Units: mmHg

Sampling Frequency: 01 Second

2012	Hour	24 Hour																										
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max	Avg
1-Jan	739	739	740	741	743	745	746	747	748	749	750	750	750	751	751	752	752	753	754	754	754	754	754	754	754	754	749	
2-Jan	754	754	754	754	754	754	754	754	755	755	755	754	754	754	754	754	755	755	756	756	756	757	757	757	757	757	755	
3-Jan	757	757	758	758	758	757	758	758	758	758	757	756	755	753	752	752	751	751	750	750	750	750	749	749	750	750	758	754
4-Jan	749	748	748	748	747	747	747	747	747	747	748	747	747	746	746	747	748	749	750	750	750	750	750	750	750	750	750	748
5-Jan	749	749	749	749	748	749	749	749	748	748	747	745	744	744	744	744	744	744	744	744	744	744	743	743	743	743	749	746
6-Jan	742	742	742	742	742	742	742	742	742	742	742	742	741	740	739	739	739	739	740	740	740	741	741	742	743	743	743	741
7-Jan	743	743	744	745	745	746	746	747	747	748	748	748	747	747	747	747	747	748	748	748	749	749	750	750	750	750	750	747
8-Jan	750	750	750	751	751	751	751	751	752	752	752	751	751	751	751	751	751	750	751	751	751	751	751	751	751	751	752	751
9-Jan	750	750	751	751	751	750	750	751	751	751	751	750	749	748	748	748	748	748	749	749	749	749	749	749	749	749	749	749
10-Jan	748	748	748	748	747	748	748	747	747	747	746	744	743	742	742	742	742	741	741	740	740	739	739	739	739	739	748	744
11-Jan	737	737	737	736	735	735	735	735	735	735	736	735	735	734	733	733	733	734	734	735	735	735	736	737	737	737	735	735
12-Jan	737	737	737	738	738	738	738	739	739	739	740	739	739	739	739	740	740	741	742	743	743	743	743	744	744	744	744	740
13-Jan	744	744	744	744	745	745	746	746	747	747	747	746	746	746	746	747	747	748	748	748	748	749	749	749	749	749	749	747
14-Jan	748	748	748	747	746	746	746	745	744	744	744	744	744	745	746	746	747	749	750	751	751	752	752	753	753	753	753	748
15-Jan	753	753	753	753	754	754	754	754	754	754	754	754	753	752	751	750	750	749	749	748	748	747	747	746	754	751	751	751
16-Jan	746	745	745	744	744	744	743	743	743	742	742	742	741	741	740	740	739	739	739	740	739	739	739	739	739	738	746	741
17-Jan	737	737	736	736	736	736	736	738	740	742	744	745	746	747	747	748	748	749	749	750	751	752	753	753	753	753	753	745
18-Jan	754	754	754	754	753	754	753	753	753	753	752	751	750	749	748	747	747	746	746	746	746	746	746	745	745	745	745	750
19-Jan	745	744	743	743	744	744	744	744	745	744	744	743	743	743	743	744	744	745	746	746	746	747	747	747	747	747	747	745
20-Jan	747	747	747	747	747	747	746	746	745	745	745	744	744	742	742	741	740	740	741	742	742	743	743	743	744	744	744	744
21-Jan	745	746	746	746	747	747	747	748	748	749	750	750	749	749	748	748	748	747	747	748	748	747	747	746	746	750	748	
22-Jan	745	745	744	744	744	743	743	743	742	741	741	740	738	738	737	736	736	735	735	734	733	733	732	732	745	739		
23-Jan	732	732	733	734	735	737	738	739	740	741	741	742	741	741	742	742	742	743	744	745	745	746	746	747	747	747	740	
24-Jan	748	748	748	748	749	750	750	751	751	752	752	752	751	751	751	751	751	751	751	751	752	752	752	752	752	751		
25-Jan	752	751	751	751	750	751	751	751	751	751	751	750	750	748	747	747	746	746	747	746	746	745	745	744	743	748		
26-Jan	743	742	741	741	741	741	741	742	742	742	741	741	740	740	739	739	738	738	739	739	739	740	740	740	741	743	740	
27-Jan	741	741	742	742	743	743	744	744	745	745	745	745	745	744	744	744	744	744	744	744	745	745	745	745	745	745	745	744
28-Jan	745	746	747	748	749	750	750	751	751	752	752	753	753	753	753	753	753	753	753	753	753	752	752	752	753	751		
29-Jan	752	752	751	751	751	751	751	751	751	751	751	751	751	751	751	751	751	751	751	751	751	751	750	750	752	751		
30-Jan	750	750	750	749	749	749	749	749	748	748	748	747	746	745	745	745	745	745	745	746	746	746	746	746	750	750	747	
31-Jan	746	746	746	746	745	745	745	746	746	745	746	745	745	745	744	743	743	743	743	744	744	745	745	745	746	746	745	745

Meteorological Report
The Doe Run Company
Precipitation

Site Name: Rivermines

Average Interval: 01 Hour
Sampling Frequency: 01 Second

2012	Hour	24 Hour																										
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max	Total
1-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	0.02	0.10	0.13		
11-Jan	0.01	0.08	0.02	0.00	0.02	0.03	0.05	0.02	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.28
12-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03
14-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.15
18-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.01	0.03	
23-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.04	0.06	0.05	0.03	0.02	0.00	0.00	0.00	0.01	0.02	0.13	0.30	0.08	0.01	0.30	0.79		
26-Jan	0.04	0.13	0.03	0.02	0.00	0.01	0.00	0.01	0.03	0.00	0.00	0.00	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.32	
27-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.02	0.03		
28-Jan	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
29-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31-Jan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

 BARR	Maximum Hour//Monthly Total Total Hours in Month Valid Hours//Percent Data Captured	0.30 744 744	1.77 100.0%
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